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A new species of blind Trechinae from the Pyrenees of Huesca, and its position within *Aphaenops* (*sensu stricto*) (Coleoptera: Carabidae: Trechini)

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Abstract

A new trechine species *Aphaenops parvulus* **sp. n.** (Carabidae, Trechini) is described from Esjamundo cave in the Pyrenees of Huesca, Spain. The new species belongs to the subgenus *Aphaenops* (*sensu stricto*), but differs from its closest congeners by the small size—it is the smallest species of the group—and characters of the aedeagus. Molecular data based on fragments of a mitochondrial (COI) and a nuclear (LSU) genes recognised *Aphaenops parvulus* **sp. n.** as a sister taxon to *A. eskualduna* Coiffait.

Aphaenops eskualduna is reported from Spain with precision for the first time.

Key words: Carabidae, Trechini, *Aphaenops parvulus* **sp. n.**, subterranean environment, Pyrenees, Spain, molecular phylogeny

Introduction

The 41 species included in the genus *Aphaenops** Bonvouloir 1862 are all Pyrenean endemics highly adapted to troglobitic life. The genus was shown to be polyphyletic by Faille *et al.* (2010), composed of two independent lineages of cave beetles, the first occupying the west of the Pyrenean chain (subgenera *Aphaenops s. str.*, *Geaphaenops* Cabidoche 1965, *Cephalaphaenops* Coiffait 1962, in part, and *Arachnaphaenops* Jeanne 1967, in part), and the second inhabiting the central-eastern Pyrenees (*Cerbaphaenops* Coiffait 1962 plus some morphologically differentiated species) (Faille 2006; Faille *et al.* 2010). Mainly diversified in the French slope of the chain, the western radiation is extended in France between the area of Bagnères-de-Bigorre (Hautes-Pyrénées) and the Arbailles massif (Pyrénées Atlantiques); in Spain ten species belonging to this clade are known between Navarra (area of Zubiri) and Ribagorçana valley. During biospeleological expeditions in the area of Villanúa (Western Pyrenees, Huesca, Spain), we discovered an unexpected species of Trechini of the *Aphaenops* (sensu stricto) group.

* On the use of the graphy *Aphaenops* instead of *Aphoenops*, please see Faille *et al.* 2010

Methods and phylogenetic analyses

Specimens were collected alive by hand in the cave and preserved in absolute ethanol in the field or collected by mean of pitfall traps containing propylene glycol, known to preserve mitochondrial and nuclear DNA (Rubink *et al.* 2003; López & Oromí 2010) (Table 1). Extractions of single specimens were non-destructive,

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